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ABSTRACT

The manner in which the University of New Mexico developed from an undergraduate teaching institution in the direction of a graduate research university during 1967-1978 was studied, using an ethnohistorical research approach. A combination of qualitative research commonly associated with the participant-observation approach was employed. A large number of documents, such as memoranda, letters, and written reports, were analyzed to reconstruct the historical events at the college during the study period. Informal interviews were also conducted. The findings indicate that the university engaged in political action as a means through which it could protect its research interests, secure resources, and adapt to changes in its external research support environment. During 1968-1978, the college administration pursued three avenues of support for faculty research: retaining a portion of the overhead charged to the general budget, reducing teaching loads for selected faculty, and establishing the Office of the Vice-President for Research. To develop external support for faculty research and development during 1971-1978, the university increased its contacts with the directors of funding agencies, the state government, and New Mexico's congressional delegation. (SW)

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POLITICAL ACTION AND THE DEVELOPMENT OF A RESEARCH UNIVERSITY

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POLITICAL ACTION AND THE DEVELOPMENT OF A RESEARCH UNIVERSITY

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This study on the manner in which the University of New Mexico developed from an undergraduate teaching institution in the direction of a graduate research university during a "bounded" (Stake, 1978) period, 1967-1978, utilized an ethnohistorical (Schumacher, 1971) research methodology. The study employed research techniques associated with qualitative methodology including document analysis and informal interviews. The findings indicate that the University engaged in political action as a means through which it could protect its research interests, secure resources, adapt to changes in its external research support environment, and was associated with the University's development in the direction of a research university.

Introduction

The principal objective of this study has been to discover, examine, and explain political action as one factor associated with the development of the University of New Mexico from an undergraduate teaching institution in the direction of a nationally-ranked graduate research university. The University of New Mexico was selected as the unit of study because it was representative of a group of Rocky Mountain and High Plains universities that appeared to be engaged in similar developmental activities during a period of uncertainty about the federal government's commitment to university research support. The rich human and document sources necessary for the conduct of this ethnohistorical study were available and provided a unique opportunity to study institutional development.

The data bearing on institutional development are briefly reported for two separate, sequential time periods. The initial sections of the descriptive narrative cover the internal modification of the organizational structure of this university, including the establishment of the Office of the Vice-President for Research. Such adjustments also facilitated the University's attempts to secure external research support. The latter sections of the

descriptive narrative covered the activities of the Office of the Vice-President for Research focusing in particular on its political action efforts to secure external research support funds. Both sets of organizational development activities were associated with the University's emergence as a nationally-ranked research institution.

Methodology

The dynamic process through which an institution of higher education responds to change in its external environment and develops from an undergraduate teaching institution to a graduate research university is not well understood. The literature on institutional adaptation to external environmental change is essentially atheoretical in nature and contains little work designed to test theories describing the dynamics of the change process (Giaquinta, 1973, p. 178).

This study is directed toward developing a set of naturalistic generalizations and building theory rather than toward affirming a prevailing theory. The significance of discovering theory from data, the generation of "grounded theory" (Glaser and Strauss, 1967), lies in the researcher's ability to arrive at relevant "predictions, explanations, interpretations and applications" (p. 1) that are both empirically sound and singularly pertinent to the phenomenon under study.

Rationale

The choice of research methodology was determined by the nature of the problem under investigation (Lofland, 1971; Schumacher, 1972). This study employed a methodology that recognized that the actions of participants, "relationships and events occurring over time . . . need to be

examined holistically and in their natural setting" (Higbie, 1981, p. 44). Filsted (1979) has noted that an important characteristic of qualitative methodology allows the researcher to get close to the data, obtain first-hand knowledge and develop the "analytical, conceptual, and categorical components of explanation from the data itself" (p. 33). Reality, meaning, and behavior were analyzed from the perspective of the subjects' interpretation of the world. Attention to the subjects' perspective allowed the researcher to obtain a rich contextual understanding of events and to obtain a powerful way to understand the phenomenon of political action component of organizational change.

A field study approach provided a flexible means through which a university's political action efforts could be examined comprehensively (Babbie, 1979) and in context. The utilization of the field-study methodology and case studies in the examination of adaptation and change of complex organizations to their environment is not without precedent (Baldridge and Deal, 1975; Emery and Trist, 1965; Herriot and Gross, 1979; Levine, 1980; Martoranna and Kuhns, 1975; Miles, 1964; Smith and Keith, 1971). Nor is the utilization of field-study methodology and case-studies by investigators in the examination of various phenomena in institutions of higher education (Fioke, 1981; Greely, 1967; Gross and Brambsch, 1968; Higbie, 1981; Pace, 1974; Paltridge, Hurst and Morgan, 1973).

Data Collection

In utilizing qualitative research methodology for the study of organizations, it is important to employ a wide variety of data collection techniques to ensure the flexibility necessary to gathering relevant data (Glaser and Strauss, 1967) and to assuring the validity and reliability of the data. The nature of the phenomenon under study lent itself to using the ethnohistorical approach described by Schumacher (1972) and Smith (1978). This approach focuses on "the accumulation of evidence about events in the past and their subsequent interpretation by the participants as part of a larger phenomenon (Higbie, 1981, p. 47). The ethnohistorian attempts to go beyond the official description of events and to include personal recollections, anecdotes, and quotations in an attempt to develop a vivid, provocatively-rich account of events. To accomplish this goal, a combination of qualitative research techniques commonly associated with the participant-observation approach (McCall and Simmons, 1969) was employed. By analyzing documents such as memoranda, desk logs, letters, written reports, minutes of board meetings, proposals, journal articles, newspaper accounts and press releases, explicit knowledge was obtained and organized into a longitudinal historical record that chronicled events during the "bounded" (Stake, 1978, p. 7) period of time, 1967-1978 during which the university of New Mexico moved in the direction of a

graduate research university. Through informal interviews, the researcher obtained additional explicit information and "tacit knowledge" (Polyani, 1958) about those pre-verbal understandings of intuitive experimental conceptions of events pertinent to the research effort. Several preliminary studies were conducted during 1978 and in 1981 before the present study was concluded in 1982. During these combined research periods, the researcher spent a substantial amount of time in the "field" at the University of New Mexico and at several other locations in Albuquerque, New Mexico, Denver, Colorado, and Orono, Maine, interviewing individuals and reviewing documents that were pertinent to the study.

Through this approach, which is described by Smith and Pohland (1972) as a "multi-method, multi-person, multi-situation, multi-variable matrix (p. 11), opportunities became available to follow Iannaccone's (1975) "reiterative cycle" of definition, data collection, analysis and examination of concepts, and subsequent redefinition as need emerged from the data generated by this "disciplined inquiry" (Cronbach and Suppes, 1969).

A total of 1,742 pages of historically relevant documents were collected during these studies from the "official" files at the University of New Mexico and from the personal files of participants. These documents proved to be a provocative source of information and were used to reconstruct the historical events under study. These records

provided the researcher with an additional avenue by which to observe how individuals reacted to external events and initiated actions inside the institution. Useful insights and corroborative data were obtained from this extensive paper trail. These documents were placed in chronological order, reviewed, analyzed and coded for future access as they were collected. Based on these documents a list of participants was prepared and interviews scheduled.

A total of 10 individuals were informally interviewed by the researcher. Each person interviewed gave written consent for use of the interview and data collected from their personal files to be used in preparing the descriptive narrative. The interviews were intended to be directed but of moderate length. The moderately-scheduled interview was described by Stewart and Cash (1974) as containing "the major questions to be asked and possible probing questions under each major question." In addition, they observe, "[t]he moderately-scheduled interview does impose a degree of structure on the interview, forces a higher level of preparation, is easier to replicate, and record answers, and is easier for an unskilled interviewer to conduct" (p. 81). The interviews were scheduled to last approximately two hours. This period of time was found to be of sufficient length to provide for unhurried "good conversation" (Rist, 1982, p. 8), during which time the researcher and the

participant could explore a topic adequately. In instances where more than two hours were anticipated or found necessary, several interviews were arranged. Each interview was tape-recorded and transcribed. Comments made by them taken in note form during the interview were recorded on the transcription. The interview-data were also analyzed and coded for access after they were transcribed. A number of new categories and redefinitions of categories emerged, expanding the researcher's perspective on the phenomena that were initially believed to be significant.

In most qualitative studies, it is common practice to mask the identity of persons and places when developing the descriptive narrative. Rist (1982) notes that masking "becomes difficult as too much data is supplied" (p. 10) about people, events and places. Moreover, a substantial amount of information concerning the background and setting of the study is customarily provided in a credible ethnographic study which would enable a determined individual to identify the research location. The University of New Mexico's involvement in the establishment of a Consortium of Rocky Mountain and High Plains universities, the Western Regional Scientific Laboratory, Inc., and its attempt to manage the Los Alamos Scientific Laboratory, all of which are described and analyzed in this study, are unique. For all these reasons it was decided, therefore, to retain the identities of persons, places and events with the provisions

that the researcher provide the individuals that participated the opportunity to review and comment on the draft of the descriptive narrative in which their names appeared and in which they were quoted. This process of review and comment by the participants also contributed to the study's validity. In addition, the decision not to attempt masking the reporting of data was based, in part, "on the recognition that the history being reported was generated by public officials" (Higbie, 1981, p. 49), who in the performance of their duties, were "publicly accountable for their actions which it is [their] duty to perform" (Rainwater and Pittman, 1969, p. 87). However, discretion and sensitivity, although a less rigorous standard" (Higbie, 1981, p. 49) is, nonetheless, a fundamental concern of those who utilize qualitative research techniques.

The following people, together with their titles during the 1967-1978 period under discussion, were interviewed: Dr. Paul Silverman, Associate Provost for Research and Academic Services; Mr. Edmund B. Kasner, Director of Research Administration; Mr. Milton Jenkins, Project Director; Colonel William Grant (ret.), Assistant Project Director; Mr. L. E. Roberts, Associate Director of The Institute for Applied Research Services; Mr. Peter D. Rask, University Counsel; Dr. Ferrel Heady, President; Dr. Chester C. Travelstead, Provost, McAllister H. Hull, Jr., Provost, and Mr.

John Perovich, Vice-President for Business and Finance. Those persons who were named or directly quoted in the study were given the opportunity to review and comment on the accuracy of the historical events reported. The following people who reviewed the data indicated their satisfaction with the accuracy of the events reported: Dr. Paul Silverman, Mr. Edmund B. Kasner, Mr. Milton Jenkins, Colonel William Grant (ret.), Mr. L. E. Roberts, Dr. Ferrel Heady, Dr. Chester C. Travelstead, Dr. McAllister Hull, and Mr. John Perovich.

Data Analysis

An effort was made to correlate and analyze the data during the collection phase of this study. Categories developed as a result of preliminary studies were coded and examined for a "goodness of fit" (McCall and Simmons, 1969, p. 233), with new data emerging from interviews and documents during the last seven months of the study. These categories were refined through constant comparison (Glaser and Strauss, 1967) between the original definitions and the emerging data.

The process of data collection and analysis was refined, focused and directed through the process of "theoretical sampling" suggested by Glaser and Strauss (1967, p. 45). Preliminary categories were examined and redefined, and new categories and sub-categories were

generated and tested throughout the study and data that supported the emerging concepts were designated. By examining and comparing the contexts and concepts, probable relationships were formulated and examined. Through this process several concepts emerged that were felt to be most applicable in illuminating the phenomena under study and were substantially accounted for in the data. The emergent concepts were then elaborated and ordered in propositional form.

Generation of Theory

The development of "grounded theory," which attempts to explain how universities develop in the direction of research institutions, was the final outcome of the study. However, the immediate applicability of the theory should be reserved. Grounded theories emerge from limited ranges of data and are limited to contextual ranges of applications. The development of "special theories adequate to limited ranges of social data [rather than] . . . the search for all-indusive conceptual themes" (Merton, 1957, pp. 9-10) is of paramount importance in this study.

It should be emphasized "that the value of grounded-theory research rests not in the explicit statistical validation of existing theory but, rather, in the discovery of new understandings and insights as well as the development of data-based theory" (Blase, 1982, p. 110). This study does not assert that the grounded theory developed here will

reflect the manner in which all institutions adjust to changes in their environment as the manner in which they will develop in the direction of graduate research institutions. Rather, it is based on the promise that "understanding the response of one institution in one setting may contribute to the fundamental and general understanding of how institutions of higher education respond to their environment and pursue development into research organizations" (Bjork, 1983, pp. 179-180). Although the setting changes from one institution to another, it is suggested that the grounded theoretical framework developed here probably reflects elements that can contribute to a better understanding of how any university interacts with its environment and develops in the direction of a research institution. Indeed, the validity of such a proposition can be tested most adequately by engaging in a future empirical research effort that can build upon ideas generated in the emergent theory (Blase, 1982; Zetterberg, 1965).

The data-based or "grounded theory" was initially organized as a set of determinants" (Zetterberg, 1965). As the data emerged and propositions were developed, the relationships suggested by each propositional statement were tested. These concepts and their correlation to organizational responses to external environmental change may be appropriately applied to a number of situations and there be contextually useful and predictive.

Background

The association between science and the federal government is a unique American phenomenon (Veysey, 1963) that emphasizes linking practical public service with applied scientific research inside an academic institution. The potential of this relationship was recognized and advocated by both Franklin and Jefferson early in the nation's history (Dupree, 1957; Price, 1965; Smith and Karlesky, 1977; Veysey, 1963). The relationship between the federal government and science has proved to be mutually advantageous: government agencies accomplish their missions with the assistance of trained scientists, and the government's support of science provides a source of strength to the emergence of scientific research in institutions of higher education.

Reliance on colleges and universities for the performance of applied research began on a modest and intermittent basis (Cowley, 1980; Dupree, 1957; Millet, 1952) but established a satisfactory operational precedent that has shaped the relationship between the federal government and universities.

During the American industrial revolution, government and industry began to utilize scientific research capabilities in universities. The realization "that scientific research had a natural place in this pattern of higher

education in the universities" followed (Seitz, 1966, p. 4). The acceptability of such scientific research to universities contributed to the emergence of American science during the 1870s and 1880s. During this period, American colleges were influenced by the German example and adopted a number of practices that contributed to the establishment of the American university (Nagi and Corwin, 1972). Scientific disciplines emerged and the involvement in scientific research became an intrinsic function of the institutions (Seitz, 1966; Veysey, 1965). The compatibility between scientific research and higher education was viewed by both academic institutions and the federal government as an important asset in the future development of the nation (Dupree, 1957; Veysey, 1965; Wolfle, 1959). Veysey (1965) and Dupree (1957) note that during the 1890s, as the demands on federal, mission oriented agencies increased, the federal government increased its utilization and support of scientific research in American universities with grants and contracts (Ben-David, 1972; Handler, 1966; Price, 1965; Rivilin, 1961). The financial support provided by the federal government enabled the universities to assume increasing responsibility for conducting the major portion of the government's research requirements (Wolfle, 1959).

The pursuit and support of science by the federal government inside universities grew rapidly during and after World War I. During the 1930s scholarly and scientific

pursuits were also recognized as valuable resources in finding solutions to difficult and pressing national economic and social problems. The practice of linking applied science with practical public service developed as a dominant theme in the federal government's rationale for employing and financially supporting university-based research.

The relationship of the federal government and the university research community entered a new era during the 1940s, when both the diversity and scale of research expanded substantially. The federal government accepted the major financial responsibility for the support of scientific research and for establishing what has been described as a partnership (Babbidge, 1968; Gladieux, 1976; Hornig, 1966; Smith and Karlesky, 1977), a symbiotic relationship (Nagi and Corwin, 1972), and a state of mutual dependence (Ashworth, 1972; Kidd, 1959; Price, 1965) with institutions of higher education. The rapid expansion of federal financial support for university-based research, according to Corson (1975) originated in the years just prior to World War II, when the government sought the assistance of highly-skilled faculty researchers.

During and after World War II, federally-sponsored research rapidly became a major campus activity. Federal grants and contracts became the principal means of providing support for scientific research. Federal support for research

rapidly overshadowed university resources as the primary means of funding scholarly research activities (Corson, 1975; Kidd, 1959; Strickland, 1967). This shift in research support from the universities themselves to the federal government was an important issue for science. Federal support for research became a fundamental characteristic of government-university relationships during the post-war period (Dupree, 1957; Murphy, 1971; Orlans, 1968). As an indirect result of government support, universities did nonetheless enhance their internal research capabilities. The federal government emerged as the principal sponsor of scientific research and the universities were recognized as the locus for carrying out government research.

The substantial, post-World War II, federally-sponsored research effort had a significant and lasting effect on American universities. This massive infusion of federal research support to universities had several consequences: (1) attention to teaching declined as interest in research increased (Babbidge, 1968; Ben-David, 1972); (2) the central administration of universities and their departments were weakened as opportunities for individual research expanded (Ben-David, 1972; Gladieux, 1976); (3) emphasis shifted from undergraduate toward graduate education and research training (Ben-David, 1972); (4) a condition of financial dependency on federal support for research emerged (Heimovicks, 1971; Price, 1965); (5) applied,

mission-oriented research, determined by the federal government, surpassed university-supported basic research; (6) new political relations between the universities and the federal government were established (Kidd, 1967; Price, 1965), and (7) the manner in which research was organized, carried out, and funded within institutions of higher education changed (Kidd, 1959; Klopsteg, 1959). There is little question that the investment of the federal government in higher education was both large and its impact pervasive.

The dramatic increase in federal support for university-based research and development between 1953 and 1968, increasing from $1.25 million to $1.9 billion (Smith and Karlesky, 1977, p. 18) had a profound impact on the evolution of established and developing institutions. The literature suggests that federal support stimulated the development of campus research, shaped its direction, dominated its continuance, contributed to the emergence of research as a measure of institutional stature and ushered in a new era of political relations between the universities and the federal government (Kidd, 1967; Price, 1965). As a consequence of this unprecedented and massive support the shape of research in universities and the direction of research institutions were no longer the concern of the academic community alone but emerged as both a matter of public and institutional attention.

Findings

In the years just prior to 1968, when federal support for research and development in the nation peaked, some faculty members and administrators at the University of New Mexico noted the importance of engaging in a broad range of research, development and demonstration activities. During the 1967-1968 period the University was characterized as a "young, maturing institution" (Personal interview, Chester Travelstead, July 26, 1982) that was in the nascent stages of development as a research institution. Emphasis on the importance of research on campus, the support of research activities, and the pursuit of an expanded sponsored research effort were consistent with this University's mission to add to the store of human knowledge and broadening man's horizon in the arts, humanities and sciences. The importance of research as a vehicle through which the quality of instruction, graduate programs, and faculty could be improved and the stature of institution enhanced was recognized by a small group of faculty and administrators.

During the early 1967-1968 period, the University, in moving toward the establishment of the Office of Vice-President for Research, made perceptible shifts both in the way it viewed itself internally and the way it wanted to be viewed externally. It was a significant shift and a symbolic step in the direction of the maturation of the institution.

The data indicate that throughout the period 1968-1978, the Administration pursued three significant avenues of support for faculty research: Advocating to the New Mexico State Legislature that (1) the University retain a portion of the overhead charged to the general budget, and (2) reduction in teaching loads be granted to selected faculty members engaged in research at the University, and (3) establishing the Office of the Vice-President for Research.

The decision to establish the Office of the Vice-President for Research and combine it with the position of the Dean of the Graduate School was made during 1968 by President elect Heady. Support for developing "a mature institution," however, was available in the experienced person of Dr. Heady, the Academic Vice-President and President elect. Dr. Travelstead observed,

> I think Dr. Heady . . . had a good deal to do with [the establishment of the Office of the Vice President for Research] . . . and before he went into the office as President he took this step as an effort to give direction and emphasis to something [research] that he thought was important for an institution that hopes to be a great university (Personal interview, Travelstead, July 26, 1982).

The Administration recognized that it would have to provide more than "some nice statements" (Personal interview, Travelstead, July 26, 1982) to move the institution in the direction of a graduate research university.

It would have to become an effective advocate for research to convince the New Mexico State Legislature to approve measures that would more effectively enhance its ability to conduct research. The Administration's shift toward faculty research and enhanced institutional stature manifested itself both in the commitment to those goals and its willingness to politically engage the Legislature. The Administration was successful in reducing teaching loads for faculty researchers and retaining of 80% of the overhead charged to grants and contracts for use in supporting expanded research activities.

The goal of more effective representation of the institution as a research university was to create higher and more consistent visibility for the University through the designation of a single University official to attend scientific meetings, government research and policy briefings, and professional meetings of research administrators. Travelstead suggested that the institution would substantially benefit by having the Vice-President for Research actively participate, as its official representative, in State, regional, and national organizations, including the New Mexico Governor's Science Advisory Board, Associated Western Universities, Western Interstate Commission on Higher Education, the National Council of University Research Administrators, and the National Association of State Universities and Land Grant Colleges.

In the summer of 1972, Dr. George Springer, the first Vice-President for Research and Dean of the Graduate School, died. Finding a replacement for Dr. Springer presented the institution with both a challenge and an opportunity. At this juncture in the development of expanded research activities there was a consensus among faculty and the Administration that the research climate on campus could be improved if an experienced researcher knowledgeable about the institution, the "outside," and capable of playing a major leadership role could be appointed.

Dr. Paul Silverman was appointed Vice-President for Research in 1973 and initiated vigorous efforts to restructure and focus the activities of the Office on securing research support and enhancing faculty research services. Dr. Silverman observed that Dr. Heady "gave me more opportunity to devote more time to encouraging research and development . . . establishing relationships both within the campus . . . and going out and selling the potentials of the institution not only at the federal scene" (Personal interview, Silverman, March 24, 1982) but at the State level as well.

By 1974, Dr. Heady's goal of obtaining research funding for the University from outside sources began to be realized. During the 1972-1975 period, when federal funds for university research became relatively static, the institution began to move more aggressively in developing

its research capabilities. "[W]hen a lot of [universities in the nation] were retrenching the University of New Mexico was going externally, it was in a marketing . . . entrepreneurial mode" (Personal interview, Kasner, May 20, 1982). The data support this impression. For example, the number of proposals submitted by faculty increased 46% between June 1971-June 1975, from 284 proposals to 613 proposals. The University's expenditure of research, development, and demonstration funds, during this period, increased (in constant 1972 dollars) 12.5% from $7.7 million to $9.6 million. In 1972, for the first time, the University was listed (54th) by the National Science Foundation in its "Total Federal Obligations to 100 Universities and Colleges Receiving the Largest Amounts, FY 1972." The University remained on that listing throughout the remaining period studied.

The Vice-President for Research and the Director of Research and Fellowship Services, Edmund B. Kasner, engaged in an aggressive program of gathering and distributing pertinent information on research opportunities and providing a wide variety of other types of support services for faculty. In addition the Office of Research and Fellowship Services identified shifts in federal funding policy to assist both the Vice-President for Research and research faculty in adjusting strategies and taking appropriate action to secure support.

The federal government was viewed by the University as the major source of research support, so it was the principal focus of the institution's initiatives in aggressively pursuing research dollars. Dr. Silverman, as part of an aggressive research-development program, began to increase the visibility of the University's research potential by increasing contacts with administrators in federal agencies and among members of the State's Congressional delegation.

Dr. Silverman and Mr. Kasner began a program of actively representing the University and "making calls on various agencies, seeing the people and getting a degree of rapport going . . . it was a marketing-type, a salesmanship-type of thing. [And] . . . every time I did go back [to Washington] I always paid a call on the Congressional delegation (Personal interview, Kasner, May 20, 1982).

To a lesser extent, because of the limited availability of research funds, Kasner also initiated and maintained similar contacts with members of the New Mexico State Legislature and State agencies. The interviews and documents indicate that the purpose of this activity was to generate information in support of faculty research as well as to represent the capabilities and image of the University as a research institution.

After the 1973 Arab oil embargo, interest in energy-resource development increased substantially in New Mexico.

The University participated in an intra-state research development plan to apply the research capabilities of New Mexico universities to the national energy crisis. According to Silverman,

> We convinced [Governor] Apodaca, at that time, to use some of the severance tax money to set up our own state [research] capacity so we could build up our [university]. . . in a way that would increase our visibility. We provided information, we provided programmatic goals that were politically useful and . . . meaningful. When we [received] federal funds for [research], we made sure that the political representatives and others were well-aware of what we were trying to do. It was a matter of communication and information (Personal interview, Silverman, March 24, 1982).

During 1972-1975, when the University was establishing itself as a more aggressive research institution, it began to affiliate itself informally with other Rocky Mountain and High Plains universities that shared common research interests. This group, the Intermountain University Research Administrators (IMURA) cooperated on a number of programs designed to strengthen their respective positions in competing for research support.

The national energy crisis brought on by the 1973 Arab oil embargo and the subsequent Congressional enactment of the Energy Reorganization Act of 1974 brought the Rocky Mountain region's energy reserves and research capabilities into sharp focus when plans for "energy self-sufficiency" were developed.

The Energy Research and Development Administration (ERDA) was created and was charged "with the responsibility

for developing or increasing the efficiency and reliability of all energy sources" (Synopsis of the LASL Management Project, UNM, 1977, p. 3). ERDA's mission effectively translated into a substantial energy research and development effort in which it planned to involve universities in a number of significant ways.

In June, 1975, ERDA published a National Plan for Energy Development and Demonstration-ERDA 48, which indicated that ERDA would contract for a substantial number of research programs, encourage joint research and development projects, including the management of government facilities, coordinate energy research and development efforts with the private sector and with universities, and solicit planning assistance from regional groups. Following the publication of its national plan, ERDA convened a two-day meeting in November, 1975, to solicit university participation in its joint efforts. At this conference Dr. Robert Seamans, Jr., ERDA Administrator, said that "ERDA [would] deal with the Universities as professional partners in the overall national energy research and development effort" (A Summary: Western Universities Propose to Manage the Los Alamos Scientific Laboratory, UNM, 1977, p. 5). According to Dr. Silverman who attended this meeting, Dr. Seamans' statement was viewed at the University of New Mexico as an indication that universities would play an important part in ERDA's effort to pursue the goal of energy independence for the nation.

Dr. Silverman became concerned that "Sandia and Los Alamos were beginning to move . . . into all the areas that previously they did not engage and which have been very largely the areas in which we, at the University, were competing. That was our major problem" (Personal interview, Silverman, March 24, 1982). Dr. Silverman was concerned with the implications of LASL's emergence as an energy research laboratory. LASL's competition with the University for research support, its proselytizing of University faculty researchers, and the resulting reduction of the institution capacity to compete effectively in certain research areas became important concerns. LASL's move into a competitive position with the University of New Mexico and other regional universities foreshadowed a far more reduced participation than regional university administrators initially expected.

On May 17, 1976, ERDA held a Western regional meeting in Denver, Colorado. The meeting included representatives of regional universities and energy coordinating agencies. During a meeting between several university representatives and ERDA administrators indicated that a review of the LASL-University of California contract was in progress and that "there was still time for the universities to submit a competing proposal [to manage LASL] if they acted quickly ("Synopses of the LASL Management Project," UNM, 1976, p. 4). Several other developments within ERDA were discussed during

the May 17, 1976 meeting that suggested the direction ERDA would take in pursuit of its future research program: (1) ERDA announced it would begin to decentralize its operation and would establish regional offices in Denver and San Francisco to facilitate its working relationship with its laboratories, government agencies, universities, and industry, (2) LASL, with ERDA's support, presented a proposal that it become a regional energy laboratory that would manage the administrative and fiscal aspects and provide direction for ERDA's regional energy-research program. The regional research universities objected to LASL's circumscribing their involvement in regional energy research by managing ERDA's research programs and substituting an administrative support unit that would replace the competitive peer-review process. The expectations of the regional research universities had been substantially diminished since the November and December 1975, meetings with Dr. Seamans, Jr. at ERDA Offices in Washington, D.C., and now LASL's emergence as ERDA's regional energy laboratory and its control of regional energy research caused concern within the IMURA group. By mutual agreement of IMURA members Dr. Silverman was to direct the group's LASL management proposal and undertake the formation of a consortium of Rocky Mountain and High Plains universities, the Western Regional Scientific Laboratory, Inc.

This effort, in part, precipitated a review of non-weapon research conducted in predominantly weapon laboratories. On June 21, 1976, Dr. Seamans, ERDA Administrator, issued an Immediate Action Directive (IAD), "Administration of ERDA Weapon Program and Weapon Complex." The intent of this IAD was to resolve the uncertainty surrounding the participation of weapons laboratories in ERDA energy research programs. LASL would be allowed to participate in ERDA'a energy research and development effort only to the extent that laboratory facilities were increased or weapons program decreased. The Assistant Administrator for National Security (AANS), Lt. General Alfred D. Starbird, U.S. Army (retired), under the authority of Seamans' June 21, 1976, AID, began reviewing the planned programs of weapons and non-weapons work. As a result of this review, General Starbird made decisions substantially reducing the non-weapons research and development work to a level below previous ERDA projection.

Evidently, there was a serious breakdown of communications within ERDA and among persons in LASL and the regional universities. ERDA's intentions for including energy research and development activities at LASL and its becoming a regional energy laboratory were not shared by persons in ERDA responsible for weapons research, and the invitation by an ERDA administrator to several members of IMURA to prepare and submit a proposal to manage LASL was an unfortunate error

that set the stage for a charged political contest. The universities believed that there were sufficient indications that LASL would increase its participation in energy research.

On June 25, 1976, Dr. Silverman wrote to Dr. Seamans, ERDA Administrator, stating that "the University of New Mexico, in association with a regional consortium of Rocky Mountain and High Plains universities, intends to submit a proposal to the Energy Research and Development Administration, to undertake the contract management of the Los Alamos Scientific Laboratory" (Silverman to Seamans, June 25, 1976). Copies of this letter were sent to ERDA and LASL officials, IMURA, the New Mexico Congressional delegation, the Governor of New Mexico, and key administrators in the University of New Mexico.

During the early information-gathering period, Edmund Kasner described LASL's response as "passive cooperation" (Personal interview, Kasner, May 20, 1982). However, during July and August it became apparent to the project staff that their intentions and objectives were being misunderstood by persons in ERDA and LASL. Cooperation, according to Kasner, ceased when it became evident that the universities were serious. At that point ERDA and LASL resisted and actively discouraged the proposal effort.

On August 5, 1976, Dr. Seamans wrote Dr. Davis, President of the University of New Mexico, to inform him that ERDA's consideration of the extension of the contract

for management of LASL had been completed. He stated that his approval of opening negotiations with the University of California "was based on consideration of all circumstances surrounding the contract, including the . . . universities' interest in . . . the study of energy problems [and which he considered] as not appropriate to LASL's primary mission . . . research, development, and testing for ERDA's nuclear weapons program" (Seamans to Davis, August 5, 1982). Dr. Seamans' decision to open negotiations with the University of California was made approximately seven months ahead of the schedule previously discussed with top ERDA officials in June, 1976.

Dr. Seamans' letter raised some rather basic questions about ERDA's intent to rely on universities to find solutions to national energy problems. The Western universities believed that ERDA's position not to consider their proposal to manage LASL was in direct contradiction of ERDA's policy on the desirability of substantial interaction with universities and believed that Dr. Seamans should reverse his decision to open negotiations with the University of California. The ERDA decision was not acceptable to the group of Rocky Mountain universities that participated in the proposal effort. They felt that Dr. Seamans had reached his decision without careful consideration of the contributions that the universities could make and which were being outlined in their proposal.

The day after Dr. Seamans wrote his letter to President Davis, on August 6, 1976, the IMURA group met at the University of Montana at Missoula to draft a proposal for the formation of a consortium of universities in the Rocky Mountain and High Plains region.. The purpose of this consortium, the Western Regional Scientific Laboratory, Inc., was to manage the Los Alamos Scientific Laboratory. Concurrent with the preparation of this proposal for the formation of WRSL, Inc., was the development of a strategy to keep their respective Congressional delegations informed about their plans.

Contacts with the New Mexico Congressional delegation, as well as with the delegations from Colorado and Wyoming increased substantially during early August 1976. Dr. Silverman and Milton Jenkins (WRSL, Inc., Project Director) met with Senator Joseph Montoya (D-N.M.) and his staff on August 16, 1976. At that meeting Senator Montoya indicated that he had not been informed of the universities' proposal plans when he voted, as a member of the Joint Atomic Energy Committee, to extend the University of California's contract to manage LASL. He agreed to see that ERDA received and considered the WRSL, Inc., proposal. Later, on August 18, 1976, Dr. Silverman and Mr. Jenkins met with Drank DiLuzio, an aide to Dr. Harold Agnew, Director of LASL. According to Jenkins,

> A curious turnaround . . . occurred when we were talking to LASL people about the proposal . . . Frank DiLuzio [said] . . . "these are the real numbers for the LASL operating budget, and you can see that the energy work . . . is only this tiny fraction of the budget." This is the same time when [LASL's] public statements were saying that now, more than half [of] the LASL budget was for non-weapons work (Personal interview, Jenkins, July 19, 1982).

The statements made by LASL and ERDA officials were contradictory.

On August 25, 1976, Dr. Davis wrote to Dr. Seamans, clearly summarizing the universities' position and requested that he review his decision to open negotiations with the University of California on a noncompetitive basis. Dr. Davis wrote:

> It is important for ERDA to understand the intensity of political frustration that currently obtains in this region. Continued exclusion from the decision-making and managerial processes cannot be long tolerated by political leaders of an area of major energy reserves. The August 5 notice of ERDA's refusal to consider a proposal has begun to stimulate initiatives which we may all regret (Davis to Seamans, August 25, 1976).

Dr. Silverman and Mr. Jenkins met during the first week in September, 1976, with all the members of the New Mexico Congressional delegation--Senator Montoya, Senator Domenici, Congressman Lujan, and Congressman Runnels and Congressman Roncalio (Wyoming)--in an effort to solicit political support for the universities' LASL management proposal. Congressman Lujan (New Mexico) and Roncalio (Wyoming) listened to the account of events with great concern

and suggested that the only way the procedures under which the LASL contract negotiations were opened and ostensibly to be awarded to the University of California could be reviewed was through a Congressional hearing. Senator Domenici promised to make inquiries among members of the Joint Atomic Energy Committee to determine how members were informed about the contract renewal. In addition, members of the WRSL, Inc., project staff began reviewing plans to approach the Carter administration.

During September Dr. Silverman accompanied by members of his staff met with General Starbird who reiterated ERDA's official position: the proposal for managing LASL was neither welcome nor desirable. Several weeks after this meeting Senator Montoya met with General Starbird and presented a list of questions concerning ERDA's noncompetitive bid process used in arriving at the decision to continue LASL management by the University of California. Congressman Lujan sent this same list of questions, prepared by the WRSL, Inc., project staff, to Dr. Seamans. On September 10, 1976 Congressman Lujan indicated that he had no objections with proceeding with the Congressional hearings but that Senator Pastore, Chairman of the Joint Committee on Atomic Energy, would probably not approve the hearings until after the election.

After Senator Montoya's meeting with General Starbird the General indicated that he would investigate the possibility

of improving cooperation between LASL and the universities. Jenkins noted that this was the "first conciliatory indication from ERDA and suggested that the universities might develop a cooperative arrangement with LASL to direct energy research in the region" (Jenkins to Silverman, September 16, 1976). Jenkins recommended that pressure be kept on ERDA from President Davis and from the New Mexico and Wyoming Congressional delegations and that the consortium continue to prepare a proposal.

Senator Domenici's aide, Mr. Getzinger, called Jenkins on October 8, 1976 to report a conversation between the Senator and Senator Howard Baker (Tennessee). Senator Baker told Senator Domenici that neither he nor the other members of the Joint Committee on Atomic Energy had been informed of the WRSL, Inc., proposal, that he did not like Seamans' response to his inquiry and that he would support a move to hold Congressional hearings on the matter.

The approach of the national elections in the fall of 1976 to some degree inhibited effective university political action. Sources inside ERDA indicated that Seamans would resign his position in the near future. Changes in the Committee system of the United States Senate had also been proposed. Many influential senators withheld their support for the consortium out of concern for national and senatorial elections and new committee appointments.

The University's effort to bring political pressure to bear on ERDA continued and briefings planned for important members of Congress, their staffs and the new Carter administration. On November 10, 1976 Congressman Lujan met with President Davis, Dr. Silverman, and Mr. Jenkins. Congressman Lujan indicated that he intended to meet with New Mexico Senators Domenici, Schmitt and Congressman Runnels to prepare a strong statement in support of the consortium's LASL management proposal. On November 13, 1976 Dr. Silverman discussed the LASL project with Senator Schmitt.

During December several meetings between university and ERDA representatives were held in President Davis' office to discuss possible working relationships with LASL. However, the controversy over energy research being conducted in ERDA's weapons laboratories remained an unabated obstacle to continued discussions.

On January 11, 1972 Dr. Silverman met with members of the WRSL, Inc., proposal staff and indicated that in consideration of ERDA's failure to move on the issue of establishing a cooperative relationship between LASL and the universities, it was time to take a more aggressive stance. Final plans to incorporate the consortium were made, press releases prepared and Mr. Kasner was designated to brief the New Mexico Congressional delegation in Washington.

During the middle of January 1977, Dr. Seamans wrote to President Davis informing him of ERDA's decision to proceed

with negotiations with the University of California for the management of LASL and disavowed any intent to discuss future management of LASL by the WRSL, Inc. The consortium proceeded with its proposal plans and increased political action plans. At the end of January LASL convened a meeting to review its research programs. The facts centered around LASL's national security role and deemphasized its energy research role. The 1% budget figure which reflected LASL's regional energy work clearly contradicted LASL's and ERDA's previously published statistics as well as those of the University of California.

Senator Stewart Udall (D., Arizona) and Dr. Silverman discussed the LASL management project on campus following this meeting during early February. Mr. Udall advised Dr. Silverman to contact Mr. S. David Freedman in the Executive Office of the President, Energy Policy and Planning. He indicated that an all-out effort was needed to develop and exploit non-nuclear energy capabilities and that the universities' capabilities should be an integral part of that effort. He believed this imperative should affect ERDA's LASL management contract decision. However, on March 24, 1977, Dr. Silverman received a letter from General Starbird, along with the unopened proposal. General Starbird indicated that he was acting on directions from the ERDA Administrator responding to WRSL, Inc.'s unsolicited proposal for management

of LASL. He indicated that the contract extension had already been signed for an additional five year period. He also encouraged the universities to continue discussions with ERDA officials "on the broader questions of regional research and development and the role that UNM can play" (Starbird to Silverman, March 24, 1977).

Although the universities pursued alternative arrangements to participate in ERDA research programs and to improve relations with LASL and ERDA, no clear picture emerged from ERDA during the spring of 1977. The universities shifted their emphasis from the long-term goal of managing LASL to pursuing a contractual relationship with ERDA to examine regional research problems and capabilities. At the same time, the WRSL, Inc., effort to keep political pressure on ERDA continued unabated. Dr. Silverman and Dr. George Olson, Vice-President for Research at Colorado State University, maintained close contact with their respective Congressional delegations. Senator Floyd K. Haskell of Colorado wrote to President Carter concerning the interest of the regional universities in managing LASL.

The continued unwillingness of ERDA to deal with the regional universities and their several proposals was frustrating and discouraging to Dr. Silverman. The data suggest that his efforts to muster political support proved ineffective in moving ERDA to reconsider its management contract decision

and to consider a role for regional universities in energy research. It "just never got off the ground" (Personal interview, Silverman, March 24, 1982). The Congressmen

> Just took a sideswipe at ERDA . . . it was an exercise in futility . . . once the government mustered its forces, there was no chance that it would succeed. It was more like throwing a stone in a millpond, it made a ripple (Personal interview, Kasner, May 20, 1982).

However, Jenkins, Kasner, and Silverman concurred that perhaps the most important effect of WRSL, Inc., was that it brought attention to LASL's work in the region and "at least slowed down and may have inhibited, to a high degree, the preying of LASL on . . . university research faculty" (Personal interview, Kasner, May 20, 1982).

Although the universities' attempt to take over the management of LASL failed and WRSL, Inc., was dissolved, it did have a significant impact on ERDA's plans to make LASL a regional energy laboratory. ERDA confirmed that LASL would remain primarily a weapons laboratory. This policy decision effectively prevented LASL from becoming a substantial competitor to regional universities for energy research support. ERDA also dropped its plans to designate LASL as a regional project-reviewer that could control the flow of energy research in the region. Thus, LASL's threat as a direct competitor to regional universities diminished substantially and the acquisition of energy research support continued as it had in the past, through the traditional ERDA peer-review process.

Analysis

A review of the literature on political action suggests that the intricate relationships that bind organizations to the larger society are manifestly political. The political process is closely linked to an organization's acquisition of resources and serves as a means through which it can protect its own interests against those of others (Bacharach, 1982; Corwin, 1965; Eliot, 1959; Gamson, 1968; Katz and Kahn, 1978; March, 1981; Pfeffer, 1981). Equally, political action may be viewed as a mechanism through which organizations adapt to environmental pressures (Corwin, 1965; Meyer, 1978; Thompson and McEwen, 1958; Thompson, 1967; Zald, 1970). The political process is associated with and directed toward indirectly influencing the decisions of others in the task environment; thus, it affects the flow of resources (Katz and Kahn, 1978). Organizations engage in political activities using methods that have proved successful for them in the past (Day and Groves, 1975). However, the literature suggests that when an organization experiences an "environmental shock" (Hannan and Freeman, 1978) that is related to its ability to acquire resources, breakdowns in established political procedures may occur and new coalitions may be formed (Cohen, March and Olson. 1972; March and Olson, 1976; Weick, 1976). As the task environment becomes more

dynamic, the political process will be intensified, peaking when the resource acquisition aspect of the task environment becomes most competitive (March, 1981). Under these conditions, Katz and Kahn (1978) and March (1981) note that organizations seek innovative political solutions.

In the specific case of the University of New Mexico, as the institution increased its efforts to develop external support for faculty RD&D during the 1971-1978 period, it increased its contacts with the directors of funding agencies, the State government, and New Mexico's Congressional delegation. Initially, these political contacts were directed toward representing the University's research capabilities and gathering information to enhance the institution's ability to compete for resources. These initial efforts were conducted during a period when federal funding for research was at a static level.

However, during the years immediately following the 1973 Arab oil embargo and the establishment of ERDA, the level of competition in the University's external research support environment increased dramatically. Between 1973-1975, the University became increasingly concerned over LASL's apparent shift from weapons to energy research and with its self-representation as a regional energy laboratory. In late 1975 and early 1976, the University's expectations of participating in ERDA's energy research program faded as

ERDA moved toward consolidating its existing system of national laboratories. It became apparent that LASL was not only a substantial competitor for energy research funds but that it would also attempt to control energy research conducted in the region. The offer to submit a proposal to manage LASL made by an ERDA official to members of IMURA in Denver on May 17, 1976, was therefore taken up by the group, which decided to develop a university consortium. All of these events increased the level of intensity in the University's political activities.

The most dramatic example of increased political activity followed ERDA's 1976 decision to renew contract negotiations with the University of California for the management of LASL. At this juncture, the University perceived itself as being thwarted in its efforts to participate in energy research in the region. In consequence, it made significant and sustained efforts to influence ERDA's decision to execute a renewal contract with the University of California for the management of LASL. These efforts involved extensive contacts with the New Mexico Congressional delegation, the administrator of ERDA, several ERDA assistant administrators, influential senators and Senate Committees, and Presidential aides. The University engaged in the political process as a means through which it could secure resources, protect its interests against those of others,

and adapt to shifts in its external research support environment. Hence, the following proposition:

> The greater the intensity of competition for resources in a university's external environment, the greater the intensity of its political action.

Toward a Theory of Political Action in Developing Research Universities

Zetterberg (1965) notes that to ask for an explanation of a phenomenon is to ask for a theory. The proposition suggested by the data that are related to the phenomenon of the emergence of the University of New Mexico as a graduate research institution is a review of what has been learned about cognitive imaging from this unique study of a single institution. Political Action is a "determinant" (Zetterberg, 1965) and its corresponding properties emerged from the data. A limited but "grounded" theoretical explanation (Glaser and Strauss, 1967) of the phenomenon of the development of the University in the direction of a graduate research university is presented as a statement that concludes the analysis and can be summarized thus:

> The development of an undergraduate teaching institution in the direction of a graduate research university is partially explained as a function of the degree of effort towards and success at political action.

Significance of the Study

Organizations are social inventions that are both fluid and dynamic. They move in time and space, act and react, and are shaped by a combination of external and internal environmental factors that both threaten survival and provide impetus for modification. The manner in which environmental influences affect organizations and the adaptive mechanisms utilized by University leaders are important foci for organizational research.

This ethnohistorical study of the University of New Mexico is unique in both setting and purpose. It represents the first ethnohistorical effort to contextually examine political action as a factor associated with the development of a graduate research university at a time when federal funding for research support remained at a relatively static level. This study provides a contextually rich historical description of a variety of forces that influenced some members of the faculty and Administration of the University of New Mexico to take a particular course of action that shaped the future character of the institution.

It is hoped that any conclusions drawn from this research effort will contribute to the ability of universities to understand the forces that are associated with the emergence of research institutions. At the very least, it is hoped that this study will contribute to the literature on how

universities adapt to changes in their external research support environment and the utilization of political action as a mechanism associated with the development of research universities.

It should be recognized that this study focuses on only one part of the University's environment rather than comprehensively describing and analyzing an institution's responses to changes. This study, instead, is limited to a highly particular slice of the University's environment and presents only a piece of that larger story.

The value of qualitative research rests in the discovery of new understandings and insights into the development of grounded theory. Although this paper does not assert that the grounded theory developed here will reflect the manner in which all institutions adapt to external changes and develop in the direction of graduate research institutions: however, it does advance the premise that understanding the response of one institution may contribute to both fundamental and general understandings of how similar universities respond to similar changes and needs in their environments. Although the propositions developed here are contextually limited to this study, they have raised questions for further research into this phenomenon.

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